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# **Worldwide Report**

**NUCLEAR DEVELOPMENT AND PROLIFERATION**

**No. 77**



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16 January 1981

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## HOUSE HEARS OF PROBLEMS WITH U.S. URANIUM

Calcutta THE STATESMAN in English 27 Nov 80 p 12

[Text] New Delhi, Nov. 26.--The Lok Sabha was told today that an overdue second consignment of 19.8 tonnes of enriched uranium, which should have arrived between March 1979 and September 1980 for the Tarapur atomic power plant, had been "withheld" by the U.S. Government and made "subject to conditions extraneous to the cooperation agreement of 1963".

This was stated by the Prime Minister in a written reply to a question by five members, including Mr Madhu Dandavate, on the U.S. uranium supply. She told them that one of the two consignments due during that period and "for which we had applied in September 1978", was received in India in the first week of October this year. The second had been withheld. However, another application for 19.8 tonnes of enriched uranium had been made on September 24 for delivery between March and September 1981. (This was in accordance with the agreed schedule of deliveries, she said in a written reply to another question.)

The Government of India, she told the questioners, "will be prepared for any eventuality by using alternative measures to ensure the continued operation of the Tarapur plant without depending on outside sources". One of the alternatives would be to operate the Tarapur reactors on indigenously fabricated mixed oxide fuel. Investigations in that regard are in progress.

Asked how long the present stock of nuclear fuel at Tarapur would last, Mrs Gandhi answered: "with the present stocks of fresh fuel, the Tarapur reactors can operate till 1983-84". Replying to another question, she said (in a written reply, again): "no consignment of enriched uranium for use as fuel at the Tarapur station has been received on a timely basis since 1975".

Answering yet another question, she said that in terms of the cooperation agreement of 1963, the Tarapur reactors could be operated on no other fuel than that supplied by the U.S. Government. "The Government of India is in touch with the Government of the United States for the continued supply of enriched uranium on a timely basis for the entire duration of the agreement of 1963 and in strict accordance with its provisions".

One question today dealt with the apprehension of some experts that the Narora atomic power project is a potential threat to the safety of the entire Indo-Gangetic plain. Mrs Gandhi told the questioner that the Government was aware of Press

reports to that effect and felt that the concern was entirely misplaced. She added: "Even at the time of selection of a site, the Government was aware of the fact that it lies in a seismic region. The station has been designed incorporating adequate safety measures. There is no need for any concern with regard to the safety of the environment or of the Indo-Gangetic plain".

Two other points made by Mrs Gandhi in written answers today: The site selection committee appointed by the Government had recommended certain sites in the western region, which includes Gujarat State, for the establishment of an atomic power station. The recommendations were under consideration of the Government and a final decision would be taken soon. "However, no definite time limit can be indicated".

The No. 1 unit of the Kota atomic power station was operating satisfactorily at present and continuous efforts were being made to further improve its performance. "Short term as well as long term remedial measures are being implemented as and when necessary to prevent recurrence of the problems".

The Prime Minister noted that of the 227 days in 1977 when the Kota station remained closed, plant maintenance accounted for 45 days, grid problems, equipment failure and human errors for 45 days, and labour unrest and strikes for 137 days. In 1978 the days lost amounted to 301, because of all three reasons. In the past year and in the first 10 months of the current year, however, only 64 days and 89 days had been lost. The reasons: "grid problems, equipment failure and human errors".

CSO: 5100

INDIA

BRIEFS

POSITION AGAINST WEAPONS RESTATED--Mrs Gandhi has reiterated that India neither possesses any nuclear arms, nor has it any intention of producing them. She said that our stand is for complete elimination of nuclear weapons. In a reply to a letter she received from one of the victims of Hiroshima in Japan, (Tetsu Kitagawa), she said India's nuclear energy program is entirely meant for peaceful purposes. [Text] [BK310732 Delhi Domestic Service in English 0240 GMT 31 Dec 80]

ATOMIC ENERGY APPOINTMENTS--It has been officially announced in New Delhi that Dr Raja Ramanna will be the director of the Bhabha Atomic Research Center. He will have the rank of a secretary to the government of India. Dr H.N. Sethna, secretary in the department of atomic energy will be the principal secretary in that department. [Text] [BK291552 Delhi Domestic Service in English 1530 GMT 29 Dec 80]

CSO: 5100



## BRIEFS

NUCLEAR COOPERATION WITH ITALY--The BATAN (National Atomic Energy Agency) and CNPEN (Italian National Energy Committee) have signed a first stage (first arrangement) agreement to work together in the area of nuclear energy uses for peaceful purposes. Professor A. Baiquni, director general of BATAN and Professor Umberto Colombo, president of CNPEN, signed the agreement on Thursday at the BATAN headquarters in Jakarta. This first stage includes the exchange of experts and technology in the field of nuclear safety, firing elements technology, isotopes in agriculture, laser and its uses, along with reactor engineering experiments. This agreement represents the execution of the cooperation plan for the peaceful purpose of nuclear energy uses that was signed last March 17th, 1980 by the Indonesian and Italian governments. Professor Colombo, leader of the 8 member delegation from CNPEN, arrived in Jakarta on Wednesday. They left Indonesia on Saturday after visiting the atomic reactor Kartini in Yogyakarta on Friday. During Professor Colombo's stay in Jakarta he met with Soemarlin, Minister of State Apparatus Regulations, Soebroto, Minister of Energy and Mining, B.J. Habibie, Minister of Research and Technology, and Professor A. Baiquni, Director General of The National Atomic Energy Agency. [Text] [Jakarta PELITA in Indonesian 10 Oct 80 p 1] 9556

CSO: 5100

## RUSES EMPLOYED TO OBTAIN NUCLEAR MATERIALS

Kuala Lumpur BUSINESS TIMES in English 1 Dec 80 p 6

[Article by Simon Henderson]

[Text]

THE HEAD of the United Nations watchdog on nuclear materials — the International Atomic Energy Agency — has suggested that a nuclear bomb should be exploded to remind the world what a horrible weapon it is. This week (starting Monday September 8) he is sending an investigator to Pakistan to check that General Zia-ul Haq's regime does not embarrass the nuclear powers by doing it first.

The inspection of the Canadian-built power reactor in Karachi is part of the regular series which Pakistan committed itself to when buying the reactor which started operation in 1974. But the visit is given added significance by the news a week ago that Pakistan has succeeded in making its own uranium fuel rods — a notable step in nuclear independence and on which, if misused, could give Pakistan the very material suitable for a bomb.

In terms of the IAEA's safeguards, Pakistan has never done anything wrong. The Agency regards all information about its relations with countries with nuclear reactors as confidential, but it is prepared to say it has always been satisfied with what it has seen, either in Karachi or at the smaller research reactor near the capital, Islamabad.

The world's nuclear powers remain acutely worried that Pakistan is

seeking to acquire a nuclear weapon. Aware of the awesome nature of their own weapons they do not relish the prospect of the capability spreading. The safety net is the safeguard system of the IAEA which is designed to allow access to nuclear technology for peaceful purposes while preventing diversion of material for military use.

But it is a safety net which seems at times almost like breaking.

For the past three years it has been known that Pakistan has been secretly trying to purchase abroad the components to make a plant at Kahuta, near Islamabad, to produce highly enriched uranium — that is uranium 90 per cent plus in the strength of its fissile isotope uranium-235.

The significance of its new fuel rods is that if misused they might provide a source of another fissile substance — plutonium. It was this very fear that caused Canada to stop supplying its own fuel rods in 1976 and later cancel the sale to Pakistan of a fuel fabrication plant. Now Pakistan has done it by itself anyway at Chashma, on the Indus. One more foreign constraint on the country's presumed ambitions has gone.

Western officials say that theoretically the country should have never been able to buy the equipment for the new fuel plant. Such a plant is

on the "stop-list" of the Nuclear Suppliers Group, the cartel of nuclear powers which tries to limit the spread of potentially dangerous technology.

But it is not difficult to circumvent the restrictions. Such components as the zirconium cladding for the uranium fuel are allowed to be exported, provided they are not in greater quantities than 500kg per year. And Pakistan has acquired a wealth of experience in surreptitious purchasing campaigns abroad if it wanted to go beyond this.

On the enrichment programme alone Pakistan is estimated to have spent several hundred million dollars buying components (or the machinery to make them) for a plant, similar to that in Holland from which a Pakistani scientist allegedly stole the plans in the early 1970s.

The components for the fuel fabrication plant are believed by Western countries to have been bought in France. The actual process is not clear but Pakistan is known to have special nuclear purchasing experts secretly assigned to its embassies in Paris, Brussels and Bonn.

Transporting to Pakistan would not have been much of a problem either. In the past material has been flown direct to Pakistan just by booking it airfreight on Pakistan International Airlines. According to the

country" the goods are purchased in. Western officials say it has sometimes been necessary to be slightly more discreet on how items are sent. In those cases they have been sent to a Pakistani-owned trading company in Dubai which has provided a suitable cut-out for the end-user certificates. Because of the often innocuous nature of individual parts, the West has been very unsuccessful in anything more than slowing the purchases.

A similar ruse was played when Pakistan wanted to buy unprocessed uranium. Purchased from Mexico, Niger in West Africa, it went by truck across the border to Libya and then onward to Pakistan. Normal requirements for reporting of uranium sales to the IAEA were largely ignored. As it is, Pakistan is now mining its own uranium anyway. Deposits near Multan — ironically, originally explored under the United Nations Development Programme — are being used in the new fuel rods.

The IAEA inspectors will be looking to see how these new rods are worked in and at the same time

checking that the original Canadian rods are still being stored properly. It is no more than a routine visit, one of an estimated two or three a year, but it is vitally important that everything should be found in proper order.

In fact Indian writers now openly describe Pakistan's efforts to make a bomb as a race between this plutonium route and the enrichment route.

Obviously fearful of the repercussions in the region's balance of power from such a development, one new Indian book, "Nuclear Pakistan", takes a delight in naming the scientists whom it sees as separately backing each route.

The division is confirmed by Western diplomats who say that the competition is as fierce that sometimes the two projects have had very little to do with each other.

But one Western official, contacted last week in Geneva where he is attending the review conference of the Nuclear Non-Proliferation Treaty, said despite the building of a fuel fabrication plant, the enrichment route will probably be the first to provide Pakistan with a bomb. — FT 4

**BRIEFS**

NUCLEAR CENTER--Lahore, Dec 17: The Punjab Government in collaboration with Pakistan Atomic Energy Commission will establish nuclear centre within the Sheikh Zaid Hospital Campus, Lahore, within next two years. According to a handout the whole project will be completed at a cost of Rs 21.8 million, including Rs 70 lakh for the construction of buildings.--APP [Text] [Karachi DAWN in English 18 Dec 80 p 6]

CSO: 5100

BRIEFS

URUGUAY-BRAZIL ENERGY MEETING--The most important matter to be taken up between Minister of Mining and Energy of Brazil Cesar Cals and Minister of Industry and Commerce of Uruguay Francisco Tourreilles, this Monday and Tuesday, in the city of Santana do Livramento, at the border between the two countries, involved a nuclear technology agreement. According to Ministry of Mining and Energy sources, Uruguayan Minister Tourreilles, in his letter of invitation which he sent to his colleague Cesar Cals, noted that his country "is very much interested" in learning Brazilian technology in the nuclear sector. In addition to a possible agreement in this sector, there are two other matters on the agenda: (1) supply of electric energy by Brazil to Uruguay to guarantee supplies after the year 2000, when the resources of Salto Grande and Palma will have run out; (2) coal technology. [Text] [Rio de Janeiro GAZETA MERCANTIL in Portuguese 22-24 Nov 80 p 8] 5058

CSO: 3100



# TRANSSHIPMENT OF SOUTH AFRICAN BOMB MATERIAL ALLEGED

Sao Paulo FOLHA DE SAO PAULO in Portuguese 15 Nov 80 p 6

[Text] Brasilia--The suspicion that Paraguay reexported through Brazil arms that allegedly had been used in the detonation of the first South African atomic bomb led Senator Itamar Franco (Brazilian Democratic Movement Party--Minas Gerais), concerned about the seriousness of the charge, to demand a full clarification from the majority bloc in order to "relay to the nation all matters connected with that alarming fact."

According to Itamar, the Foreign Ministry's story that the Brazilian Government does not know anything about the matter because Paraguayan goods are shipped in Paranagua in sealed crates did not convince anyone. On the basis of legislation pertaining to the entrepot agreement between Brazil and that country, he sought to show that the Brazilian port authority is obliged to inspect goods in terms of content, label, weight and other details.

After pointing out that the Brazilian foreign policy position rejects the proliferation of atomic weapons, he called attention to the consequences which the action could bring about in our policy with the African nations inasmuch as South Africa is constantly being condemned by UN resolutions.

"So I ask: what sort of reprisal are we exposing ourselves to by those who justifiably oppose the perverse racist policy?"

## Investigation

Even granting that Brazil knew absolutely nothing about the matter, Itamar stressed that it was to be hoped that the government would initiate an immediate investigation to clarify the suspicion. In the event that it were confirmed that Paraguay had engaged in fraud, he believes the goods entrepot agreement with that country through Paranagua should be denounced.

In the name of the majority, vice leader Aloisio Chaves (Para) pledged that he will seek to get the necessary clarifications and make them known to the chamber. However, he stressed that the Paraguayan authorities might not be implicated since the private transporter could use a fraudulent expedient to reexport weapons through Brazil. Responding, Lazaro Barbosa (Brazilian Democratic Movement Party--Goias) maintained that even so the Paraguayan Government had to assume responsibility inasmuch as the international agreement is an act of sovereignty.

### Three-Way Operation

In his statement, majority vice leader Jose Lins (Ceara) observed that both the Brazilian and Paraguayan governments can be tricked, pointing out that, in the case of fraud, someone in authority in Paraguay should be held accountable for the improper use of the agreement instrument. Paulo Brossard (Brazilian Democratic Movement Party--Rio Grande do Sul), not satisfied with Lins' explanation reserved comment awaiting the official explanations.

Itamar stressed that, according to the press, the arms traffic for the South African atomic bomb had been the result of a three-way operation because the German company that was the supplier of the material--155 mm howitzers--could not send it directly because of UN embargoes against that African country because of its apartheid policy. Using the facilities granted by Brazil to Paraguay for international trade, the latter reportedly acted as a reexporter.

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CSO: 5100

# NUCLEBRAS REPORTS ON ANGRA PROJECT

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 12 Nov 80 p 26

[Text] Brasilia--The president of the Brazilian Nuclear Corporation (NUCLEBRAS), Paulo Nogueira Batista, revealed in the national congress yesterday that by March 1981, all the piles planned to be driven in the Angra-II complex (a total of 1,363) will be in place and that that operation alone will cost \$5 million. So far, 1,269 piles have been driven. Paulo Nogueira did not indicate what the total cost of the delay in the project timetable will be, stressing that that is a matter that pertains exclusively to Furnas. The important thing, in his opinion, is that the errors have been corrected.

In another part of his testimony before the nuclear congressional investigating committee, Paulo Nogueira Batista said that the opponents of the Brazilian nuclear program "seek to undermine its economic foundations in order to create doubts abroad about the peaceful intentions of national policy in that sector, or doubts regarding the determination of the government and its ability to show what it is capable of in that area." In his opinion, nothing will deter the official course in its determination to obtain technology in that area for exclusively peaceful purposes.

After stressing that Brazil did not subscribe to the treaty on the nonproliferation of nuclear energy [as published] because it considered it discriminatory, the president of NUCLEBRAS again criticized that treaty, saying that it is nothing more than a measure to restrict access to nuclear energy. In his opinion, that treaty is "inadequate to promote the objective of nonproliferation of nuclear weapons, either in the vertical sense of nuclear disarmament properly speaking or in the horizontal sense of not increasing the number of countries possessing those weapons."

Reviewing the first contacts by Brazil with a view to establishing its nuclear program recently, Paulo Nogueira Batista revealed that the need for a nuclear-electric program, emphasized by the Brazilian Electric Power Company (ELETROBRAS) as a result of the progressive exhaustion of the hydroelectric potential in the Southeast region, "made it inevitable that we consider seeking international cooperation." And in accordance with broader objectives, the government could not restrict itself to permitting electric power service concessionaires to purchase "plants abroad recommended by ELETROBRAS, as a 'black-box' package."

That "basic guideline," he added, immediately eliminated direct negotiations with U.S. companies, "the traditional suppliers of the electric sector and Angra-I." The NUCLEBRAS president revealed that contacts established with the United States, "even at the government level, immediately showed the impossibility of broad cooperation within the terms desired by Brazil, particularly with regard to the areas of the isotopic enrichment of uranium and the reprocessing of irradiated materials."

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**BATISTA VIEWS ANGRA-II STATUS, PROGRAM COST, NPT**

Rio de Janeiro O GLOBO in Portuguese 12 Nov 80 p 21

[Text] Brasilia--The cost of the Brazilian nuclear program, which is supposed to generate 10,000 megawatts by 1995, is estimated at \$13.5 billion at current prices. The president of the Brazilian Nuclear Corporation (NUCLEBRAS), Paulo Nogueira Batista, testifying before the senate committee investigating the Brazilian-German nuclear agreement, revealed yesterday that investments will amount to \$7 billion by 1990.

Paulo Nogueira Batista, the last to testify before the senate investigating committee, whose conclusions will be known early next year, directly rejected all the criticism being leveled at the Brazilian nuclear program, pointing out that the investments in the program envisaged for 1981 represent only 1 percent of the overall expenditures of state companies. NUCLEBRAS' foreign debt does not amount to 1 percent of Brazil's indebtedness.

"What the opponents of the Brazilian program seek is to undermine the economic foundations of the program to create doubts abroad about the peaceful intentions of our nuclear policy or doubts regarding our determination and our capability to carry it out."

Nogueira said that in stressing that Brazil has 213,000 megawatts of hydroelectric energy at the present time, the critics of the program forget that that potential is in the Amazon region and, therefore, does not represent an increase of available supplies for utilization in the short term. In the Southeast region, which represents 70 percent of national electricity consumption, he added, the available potential will be exhausted before the end of this decade, according to the predictions of the Brazilian Electric Power Company (ELETROBRAS).

Even if all of Brazil's hydroelectric potential were utilized, it would be exhausted by the year 2003 due to the growth of consumption, estimated by ELETROBRAS at 10 percent per year in the current decade and 7.5 percent the following decade, the NUCLEBRAS president observed, concluding that "the proposal to abandon or slow down the nuclear program does not make sense."

Replying to questions of senators from the Social Democratic Party (PDS) (the opposition members left the committee in protest against the fact that aides of the minister of mines and energy had not been summoned), Paulo Nogueira Batista said that in supporting the "slowing down" of the program, Vice President Aureliano



Chaves "had only expressed a personal opinion which does not reflect the thinking of the government, as he himself emphasized."

He argued also that within the next 10 years, the nuclear power plant program will represent less than 15 percent of the overall investments envisaged for the generation and transmission of electricity, "which clearly show the real priority ascribed by the government to the hydroelectric sector."

According to Paulo Nogueira Batista, the critics of the program also forget the fact that there are hydroelectric plants the cost per installed kilowatt of which is already even higher than that envisaged for the nuclear plants. Citing the Balbina plant in the Amazon region as an example of that, he stressed that in general nuclear plants can already be competitive with the hydroelectric plants that will go into operation in the early nineties.

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# OPPOSITION REJECTS NUCLEAR ACCORD WITH ARGENTINA

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 20 Nov 80 p 30

[Text] Brasilia--By 9 votes to 6, the representatives of the opposition in the Mines and Energy Committee of the Chamber of Deputies yesterday rejected the nuclear agreement signed between Brazil and Argentina. The opposition deputies followed the separate opposing vote of Deputy Marcelo Cordeiro (Brazilian Democratic Movement Party--Bahia), who had asked for an opinion on the report by Deputy Joao Faustino (Social Democratic Party--Ceara), favoring the accord.

Cordeiro said that his vote was political, designed to alert the country "against a badly dimensioned nuclear policy lacking legitimacy, which is only conferred by democratic methods." In his opinion, it is the task of the congress to generate "a new, open" discussion of the strategy of the agreement.

The congressman declared that the country must master nuclear technology but he does not believe that the Brazilian nuclear program is the best solution for the country's energy problem. Cordeiro believes that Brazil's dependence in the nuclear area is "beginning to show the first signs of a split" inasmuch as, he explained, the transfer of technology from Germany makes the country ever more dependent.

In his opinion, Brazil signed the agreement with Argentina because of "a badly dimensioned nuclear program beyond our real possibilities." In Cordeiro's opinion, the agreement with Argentina "fits into the complicated nuclear fuel cycle and our position in relation to Argentina places us at great disadvantage" because Brazil needs uranium from Argentina to have as a fuel reserve.

Marcelo Cordeiro pointed out that plant No 1 at Angra dos Reis is going to shut down for 3 months to change one-third of its fuel and if the Brazilian Nuclear Corporation (NUCLEBRAS) uranium concentrate plant in Pocos de Caldas does not provide a sufficient amount to recharge the plant, Brazil would have a supply guarantee from Argentina. According to the agreement signed, that country is supposed to supply Brazil with 240 tons of uranium concentrate.

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CSO: 5100

NO DECISION REACHED ON REMOVAL OF NUCLEAR WASTE

Sao Paulo POLHA DE SAO PAULO in Portuguese 2 Nov 80 p 28

[Text] Itu--The National Nuclear Energy Commission (CNEN) has no prediction as to when the material stored in the Batuxim district of Itu will be removed from there and sent to the nuclear reactors that are being installed in Brazil. That information was conveyed last week at a meeting held in the Itu city hall with the participation of community leaders and the director of the Department of Nuclear Installations and Materials, Jose Julio Rozental, who visited the municipality to reassert the point of view of the CNEN, that the material sent there "does not represent any danger to the Itu community."

The problem was fully analyzed for more than 2 hours. During the meeting, Rozental heard many appeals that the material stored in Itu be removed and transferred to another site. But the CNEN representative made it clear that that decision does not fall into his area of decision. He even contradicted one of the councilmen present, who insisted on pointing out the dangers of the storage site, declaring that he was prepared "to drink the water found there, in your presence" to prove that the wide publicity given to the existence of the atomic waste "was sensationalism."

"The material in the Itu storage site can be considered basic material within the context of the nuclear program inasmuch as it contains a very significant uranium reserve and there is no atomic waste of any kind." Rozental pointed out that in order for a reactor to operate, it needs uranium, stressing the existence of a fuel element factory to prepare it. After commenting on the uranium conversion phase, the CNEN representative justified the construction of the Rezende industrial complex with three factories that will take care of the conversion, enrichment and manufacture of the fuel element. "The latter is what will go into the reactors to generate electric energy."

Showing photographs of material storage sites in other countries, Rozental sought to prove that there is no danger, not only to the community but also to those who work in the area. "Anyone having a chest X-ray receives as much radiation as if he were to remain 2 hours near the drums at the Botuxim storage area."

Recounting the Brazilian nuclear process, he stressed that there is no technological development that does not produce "something that you and the people call waste and that does not generate pollution. The capital problem is that: there cannot be well-being of any of the population, there cannot be calm and consequently progress, if there is not a positive net balance. And that is one of the principles of nuclear safety."

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CSO: 5100

## BRIEFS

**NUCON CONSTRUCTION SUBSIDIARY**--The Nuclear Construction Company (NUCON), the new subsidiary of the Brazilian Nuclear Corporation (NUCLEBRAS), created by presidential decree, will be responsible for all plant construction in Sao Paulo with the technical support of the Sao Paulo Electric Power Company (CESP). There has not been any indication yet as to who will comprise its management. CESP directors denied yesterday that its vice president, Jose Gelazio da Rocha, a nuclear energy specialist, has been asked to assume the directorship. However, the report has been confirmed that NUCON will work in Sao Paulo in coordination with the CESP on the construction of two nuclear plants which, together with Angra-II and -III under construction in Rio de Janeiro, will make up the four plants envisioned in the nuclear agreement with Germany, which can be expanded, if the government so desires, with the construction of four more units. Another report that was confirmed is that NUCLEBRAS will sign a contract with Cobramex for supplying the heat exchangers for Angra-II. [Rio de Janeiro JORNAL DO BRASIL in Portuguese 3 Nov 80 p 28] 8711

**ENERGY PROGRAM INCENTIVE**--Brasília--Beginning this week, Planning Minister Delfim Netto will resume a series of contacts with groups of businessmen--at least 6 groups of 15 persons each have already been selected--to whom he will say: whoever wants to earn money in 1981 will have to engage in some project of the Energy Mobilization Program or encourage some activity connected with agriculture and exports. Delfim will say that all investments or the overwhelming majority of them must be concentrated in those three segments of the economy. In 1981, at least \$10 billion, or 600 billion cruzeiros at today's prices, will be invested in the energy sector alone; that is equivalent to 5 percent of the gross national product. [Sao Paulo O ESTADO DE SAO PAULO in Portuguese 16 Nov 80 p 52] 8711

CSO: 5100

## CNEA CELEBRATES 25TH ANNIVERSARY

Montevideo LA MANANA in Spanish 5 Dec 80 p 9

[Text] The National Atomic Energy Commission, created by the Decree of 30 November 1955, has been engaged in specific activities connected with the celebration of its silver anniversary in this interesting scientific discipline.

At that time, the Executive Branch gave the University Commission federal status and designated it as the National Atomic Energy Commission in view of the need for sponsoring and promoting, by all means, the study and drafting of suitable programs and plans for the peaceful uses of atomic energy.

### Stages Completed

Our fellow scientists have gone through arduous stages and many times had to grapple with serious economic and other problems as well as the lack of understanding on the part of those who did not know or did not wish to understand the tremendous significance of the peaceful use of atomic energy in the life of nations.

At the start of its activities, a team of experts from the USAEC and the United States State Department arrived in the country, among other things talking about President Eisenhower's "Atoms for Peace" plan and suggesting the signing of an agreement for the peaceful use of nuclear energy with the United States. The agreement offered financial assistance (up to \$350,000) as well as technical assistance in setting up a research and training reactor, plus up to six kilograms of enriched uranium for that reactor. The bill remained in parliament for several years and the agreement was not ratified in the end.

### Atoms in Action

The "Atoms in Action" exhibit was organized in Montevideo in 1966, for the first time showing the public the Lockheed reactor which later on, in 1965, was purchased by the country and once again placed in operation in 1978.

The implementation of the food irradiation program--particularly involving potatoes--was begun in 1969. The 1970 Budget Law allocated funds for a feasibility study involving the establishment of a food preservation plant using irradiation; in June 1970, the Montevideo city manager's office authorized the sale and consumption of irradiated potatoes.



#### Current Events

The current period was started with a transfer of the CNEA [National Atomic Energy Commission] from the Ministry of Education and Culture to the Ministry of Energy and Industry in 1974. The makeup of the CNEA was profoundly altered in 1976, with its members being reduced from 21 down to five. Efforts were stepped up throughout the country in the area of uranium prospecting and that culminated in the work connected with the construction of the R-1 reactor in 1978, the year it also became critical.

In terms of international relations, a cooperation agreement was signed with Chile, followed by the signing of the Cooperation Action Plan with Argentina and a visit by distinguished personalities among whom we must single out the director-general of the IAEA, Dr Sigvard Eklund, the chairman of the Argentine CNEA, RAdm Carlos Castro Madero, and the chairman of the JEN, Lt Gen Jesus Olivares.

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## BRIEFS

NUCLEAR REACTORS FROM U.S.--Deputy Prime Minister and Foreign Minister Kamal Hasan 'Ali has stated that the Arab Republic of Egypt has initialed with the United States agreements for the establishment of nuclear power stations. Negotiations have also been held for this purpose with France, Canada, Britain and Australia. In a statement to our reporter, Kamal Hasan 'Ali said that Egypt's ratification of the treaty on the nonproliferation of nuclear weapons is a condition for supplying Egypt with nuclear power stations. He added that the Cabinet recently approved this treaty, which will be submitted to the Parliamentary Committee of the National Democratic Party prior to its submission to the People's Assembly for ratification. Kamal Hasan 'Ali said that from now until the year 2000 Egypt will need about 10 nuclear power stations for its projects. [Text] [NC251903 Cairo Domestic Service in Arabic 1830 GMT 25 Dec 80]

NUCLEAR NONPROLIFERATION AGREEMENT--Cairo, 24 Dec (MENA)--During its meeting today under the chairmanship of Dr Fu'ad Muhyi ad-Din, the Cabinet condemned Libya's intervention in Chad. The Cabinet's secretary general, Counselor 'Adil 'Abd al-Baqi, said after the 6-hour meeting that Deputy Prime Minister and Foreign Minister Kamal Hasan 'Ali reviewed foreign affairs in general, dwelling in particular on Egypt's position on the Chadian issue and its condemnation of Libya's intervention. 'Abd al-Baqi added that the Cabinet agreed to proceed with steps to ratify the agreement on the nonproliferation of nuclear weapons signed by Egypt in 1968. Kamal Hasan 'Ali earlier explained that it was in Egypt's interest to ratify the agreement because it would confirm its peaceful course and good intentions as well as enable those countries with nuclear expertise to cooperate with Egypt in constructing nuclear powerplants. [Excerpts] [NC241614 Cairo MENA in Arabic 1522 GMT 24 Dec 80].

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SOVIET COMMENT ON ISRAELI NUCLEAR WEAPONS DEVELOPMENT

Moscow KOMMUNIST VOORUZHENNYKH SIL in Russian No 20, Oct 80 signed to press  
3 Oct 80 pp 81-86

[Article by N. Pokormyak: "Dangerous Tool of Imperialism and Zionism"]

[Excerpt] Israel's development of military industry includes a nuclear weapons program being carried out with U.S. blessings. Development of nuclear weapons has been underway for many years at the Dimona scientific research center. And it is no coincidence that Israeli leaders have repeatedly threatened to employ "nonclassic" weapons against the Arab countries. In these nuclear preparations, Tel Aviv cooperates actively with the YuAR [Republic of South Africa]. According to a report by a special UN committee against apartheid, Israel is directly associated with the military aspects of South Africa's nuclear program and is taking a direct part in building nuclear installations in the Republic of South Africa.

The Arab nations and the world's entire progressive public are justly disturbed and concerned about Tel Aviv's nuclear ambitions. The question arises: Where does Israel, whose Zionist rulers proved unable to establish the developing and self-serving state on their own, get all the enormous means to maintain an army large in relation to the country's size, to supply it with modern weapons, and to conduct aggressive actions against the Arab nations? One should look for the answer in the "special relationship" that exists between Israel and the United States. Washington makes use of this state as a springboard for gross interference in the affairs of the Near and Middle Eastern nations and for carrying out its hegemonic aspirations in this region. From 1948 through 1979, the United States has granted Tel Aviv 15.5 billion dollars just through the policy of government subsidies. To this should be added the generous "donations" to Israel from the international Zionist organizations.

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# SOVIET VIEWS ON SOUTH AFRICA'S NUCLEAR CAPABILITY

Moscow SOVETSKIY VOIN in Russian No 4, Feb 80 pp 46-47

[Article by Col F. Penkin: "The Racists' Nuclear Ambitions"]

[Text] Angrily assailing the NATO countries' criminal military cooperation with the Pretorian racists spearheaded against the national liberation movement in southern Africa, readers of the journal of Sergeants V. Zakharov and S. Rakhimov, Pfc S. Shakura and Pvt V. Koslov request a more detailed description of how, in violation of many UN decision, the Western powers have helped the apartheid regime create the foundations of a nuclear industry in the Republic of South Africa and develop nuclear weapons. We publish the following article on this subject.

It has long been no secret that practically every leading Western power and their numerous transnational companies doing business in southern Africa have contributed to the creation and development of South Africa's nuclear industry. Only thanks to the comprehensive support of the leading countries of the aggressive NATO bloc and also Zionist Israel has the apartheid regime in Pretoria been able to get right to the point of the creation of nuclear weapons, which it has long dreamed of getting its hands on.

In the evening of 26 October 1979 the U.S. State Department issued a statement which officially reported: "The U.S. Government has information which allows us to believe that a low-yield nuclear explosion occurred on 22 September in an area of the Indian and the southern Atlantic oceans which also covers certain parts of Antarctica and southern Africa." At the same time officials specified that the nuclear explosion had occurred close to the shores of South Africa.

Attempting to ward off the wave of anger and endeavoring to confuse the world public, the South African information media circulated a fraudulent version to the effect that there had been no test but merely that there had been "an accident on board a Soviet nuclear submarine." Such fabrications were, naturally, utterly groundless, and TASS repudiated these fabrications as to their worth in its statement.

Officials of a number of Western countries which are NATO ringleaders hastened to dissociate themselves from participation in this event—development of a nuclear

device and its presumed explosion. Thus D. McHenry, American UN representative, stated that the United States "bears no responsibility" for what had occurred. He attempted to explain this by the fact that his country had allegedly "ceased all cooperation with South Africa in the sphere of nuclear energy 2 years ago."

Of course, this interpretation of the fact is unconvincing and was dictated more by an attempt to confuse the international community, primarily the African countries, and deflect from the United States blame for Pretoria's criminal involvement in the nuclear race, for which South Africa is persistently and consistently creating its own nuclear potential.

Much documentary evidence has been accumulated of the West's direct participation in the encouragement of South Africa's nuclear ambitions. Thus addressing a session of the UN Security Council Committee for Monitoring Observance of the Embargo on Arms Supplies to South Africa, the American scientist Ronald Walters stated that the United States, West Germany, Britain, France and Israel had played the main part in creating the racists' military and nuclear potential. [Rouks], former chairman of South Africa's Atomic Energy Administration, frankly confirms:

"If we are now at such a high stage in nuclear research, this should be attributed to the assistance which the United States so readily afforded us in the first years of our nuclear program; several nuclear powers of the Western world through joint efforts initiated our scientists and engineers into the secrets of the core."

Why are the NATO countries and the imperialist monopolies acting as the solicitous guardians of the racists and giving them all-around assistance, in the nuclear sphere also? There are several reasons here: very high profits, which are sometimes of the order of 40-45 percent, serve as a kind of strong magnet which has long attracted foreign monopolies and their capital to South Africa; South Africa satisfies a considerable proportion of the NATO countries' need for types of strategic raw material which are in short supply; and the strong liberation movement which has spread in southern Africa is threatening the monopolies' rapacious interests.

We will adduce merely the main stages of the racists' nuclear race with the West's assistance.

Gambling on force in international affairs and the "cold war," after WWII the most aggressive U.S. forces of reaction and imperialism began to urgently replace and expand their military, including nuclear, arsenals. Plans for a nuclear attack on the USSR known by the names Dropshot and Trojan were drawn up in the United States at the end of the 1940's. Uranium was needed, and in large quantities, moreover. A search for it was begun with the help of British and American specialists, and this produced results in 1945 near Johannesburg and in Namibia.

The Atomic Energy Administration was set up in South Africa in 1949, and 3 years later the first plant for the enrichment of uranium ore was commissioned. In 1950 the administration signed with the United States and Britain a long-term agreement on supplies of uranium raw material. The U.S. Atomic Energy Commission made its equipment available to South African engineers and atomic scientists. South Africa's raw material reserves are currently put at 163,000 tons on its own territory and at



100,000 tons in Namibia, which it illegally occupies. Pretoria controls more than 20 percent of the capitalist world's uranium reserve and is its third biggest producer. And, moreover, the United States accounts for 8.3 percent of uranium imports from South Africa.

Within the framework of a governmental (precisely, governmental) agreement on co-operation between the United States and South Africa in the nuclear field signed in 1957 the American Allis Chalmers Corporation supplied the Safari-1 and Safari-2 nuclear reactors to South Africa's nuclear center--the township of [Valindaba]--in the first half of the 1960's. As the Belgrade newspaper POLITYKA reported, from 1956 through 1977 the United States sold South Africa more than 100 kilos of enriched uranium, which is enough to make 10 atom bombs.

The FRG began to take an active part in the creation and development of South Africa's nuclear potential at the end of the 1950's and start of the 1960's. According to the evidence of the foreign press, the construction of individual facilities of South Africa's nuclear industry became possible thanks to such West German monopolies as Siemens and Messerschmidt-Boelkow-Blohm; contacts were maintained with the West German dealers in nuclear death by a certain Donald Soul, who worked in South Africa's Atomic Energy Administration, and at the end of the 1960's by its ambassador in Bonn. The hectic activity of the ambassador, more accurately, of the emissary for special assignments was connected with the South African atom disciples' access to the secrets of West Germany's nuclear research center in Karlsruhe. As the French monthly MONDE DIPLOMATIQUE reported, Western experts established that the method of enriching uranium in South Africa bears a "striking resemblance to the method" devised by Erwin Bekker--leader of the center in Karlsruhe.

French monopolies are also involved in the creation of a nuclear industry in the country of apartheid. "If France," the same MONDE DIPLOMATIQUE wrote, had become, in the expression of a South African minister, 'South Africa's best friend' in the 1960's and 1970's, it was precisely thanks to the extensive sales of ultramodern weapons and technology, which enabled Pretoria to build a powerful military-industrial complex. In addition, Paris by no means ignored the possibility of nuclear cooperation, which subsequently led to the signing of the 'contract of the century' --for the supply of two nuclear power stations to South Africa."

Each nuclear power station has a capacity of 900 megawatts. The scale of the construction project may be judged by the value of the contract, which is over \$1 billion. Although France has officially opposed the nuclear armament of South Africa and has in recent years observed the embargo on arms supplies to this country, the construction of the power stations, which was begun in July 1976 in [Koberg], north of Capetown, is continuing. Some 500 kilos of plutonium will build up annually in its reactors by 1985.

If the South African racists are now having a go at an atomic bomb, they are doing so to a large extent because of the criminal close alliance with Western countries and their military-industrial corporations. Primarily they are directly responsible for the creation in the south of the continent of the racists' aggressive military machine.

It is fitting to recall in this connection that back in 1977 the Soviet press had published material testifying to the presence in the Kalahari desert (Namibia) of a

nuclear weapons testing area. A TASS statement of 9 August 1977 emphasized that nuclear weapons in the hands of Pretoria "would create the most direct threat to the security of African states, would lead to a sharp escalation of instability and tension in southern Africa and would increase the nuclear threat to all mankind." This public exposure forced the racists to temporarily abandon the planned nuclear explosions. But in September last year it is highly probable that these tests were carried out in an atmosphere of total secrecy.

Tel Aviv should be put among Pretoria's other atom disciple-partners. Although the cooperation of the two odious regimes in the nuclear field is specially not advertised, it nevertheless exists. Citing the "belief of many specialists," the West German paper *FRANKFURTER ALLGEMEINE* noted the "close relations" between Israel and South Africa on questions of supplies of South African uranium to the Zionists and also the latter's readiness "to reciprocate." It was evidently a question of this "reciprocity" when the weekly *NEWSWEEK*, alluding to the belief of America's special services, wrote that the bomb which the racists were about to explode in the Kalahari desert just over 2 years ago could have been Israeli made. For the leaders of apartheid and racism, putting their trust in the "absolute weapon," are pursuing the goal of these regimes, which are a disgrace to mankind, with nuclear blackmail and the spread of their influence far beyond the confines of their countries' borders.

The Western press has reported that an investigation is under way into the possible explosion of a nuclear device on 22 September 1979 in the South Atlantic. Whatever this investigation reveals, a fact remains a fact: the most inhuman regime--the racist rulers in Pretoria--is pressing for nuclear weapons. The South African Government recently announced its intention of building a powerful complex for producing enriched uranium. Pretoria was evidently in need of nuclear material, many African press organs note, to start the mass production of nuclear weapons. It is difficult to exaggerate the danger which the apartheid regime's possession of nuclear weapons represents. After all, relying on the assistance of the NATO countries, the South African armed forces already have the vehicles for delivering nuclear warheads. Something else is widely known: the South African Government is one of the few which have refused to sign the 1970 Nuclear Nonproliferation Treaty, which has already been signed by more than 100 states. All the greater is the responsibility for the criminal alliance with the racists borne by the Western countries which, in violation of UN decisions, are helping the nuclear maniacs develop their own nuclear potential.

The newspaper *SECHARA*, which is published in Tanzania and is the organ of the African National Congress, the mass revolutionary-democratic organization, rightly warns: "The regime will be able to and will use its nuclear might to fight boycotts, embargoes and sanctions. It will be able to blackmail Africa and the international community and force them to consent to its policy of apartheid at home and the spread of its economic influence on the continent. Pretoria's behavior...is every reason to fear that this bellicose regime could use nuclear weapons as a desperate measure."

The fact that precisely now the South African authorities have pulled out the dangerous plan for the creation of an "association" of southern African states puts us very much on the alert. Pretoria is no longer satisfied with the place of outpost

of imperialism in Africa which it has been assigned by the Western powers. The racists have now decided to operate with the sights set at long range--to create some "association" of African states under their aegis and extend the sphere of their influence. South Africa has already switched to practical steps aimed at cobbling together this grouping of states. One of the first acts in this respect was a broad conference in Johannesburg of politicians and industrial and financial bigwigs at which Prime Minister P. Botha expounded his idea. Need it be said that the hegemonistic plans of the inordinately ambitious premier received the South African industrialists' virtually unanimous approval.

In addition to Rhodesia and Namibia the racists put on the list of countries to be included in the bloc the states economically dependent on South Africa--Lesotho, Swaziland and Botswana. And in the future they see all sub-Saharan countries of the African continent participating in an anticommunist alliance.

But these calculations are being built without the host, without the freedom-loving African peoples. The independent African countries, which are supported by the progressive international community, decisively reject both Pretoria's hegemonistic plans and its nuclear blackmail, which threaten peace on the continent and worldwide.

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## FINNISH MEDIA REACTION TO NORWEGIAN VIEWS ON NUCLEAR-FREE ZONE

LDO31108 Helsinki International Service in English 0930 GMT 3 Jan 81

[Text] Norway has expressed interest in strengthening the nuclear-free character of the north. Norwegian Prime Minister Nordli specified in his New Year's address his country's views on creating a nuclear weapons-free zone in northern Europe.

Finnish television news analyst Knud Moeller noted on Friday that the statement by Prime Minister Nordli indicates that changes have taken place over the years. At the time of the original suggestion by President Kekkonen in 1963 for a nuclear weapons-free north, Norway and Denmark noted that the north already was a nuclear weapons-free area since these countries had refused to accept nuclear weapons on their territories in peacetime. In his statement on Thursday Mr Nordli noted that a nuclear weapons-free north could be achieved as part of a wider arrangement. Our news analyst Knud Moeller said that Mr Nordli apparently meant the same as Defense Minister Thorvald Stoltenberg in December. Mr Stoltenberg said then that if the north were to be made nuclear weapons-free the Soviet Union should remove (tactical) nuclear weapons that could be directed at Norway.

Soviet reactions to these statements are negative. This was reflected, for instance, in a comment released by the news agency APN before the end of the year. In a commentary Igor Pavlov noted that in a discussion on a nuclear weapons-free north a number of unrelated and unrealistic things had been put forward. Mr Pavlov pointed out that the Soviet Union is a nuclear power, while the Nordic countries are not. If the Soviet weapons in the Kola Peninsula, for instance, were to form the subject of discussion, U.S. weapons in the corresponding areas should also be discussed. In Pavlov's opinion, the main issue is to obtain guarantees that the United States would give up directing nuclear weapons against the Soviet Union from Danish and Norwegian territory.

The Norwegian prime minister said in his speech that he favored solving the problem in a wider framework. Radio Finland's news analyst said that Mr Nordli perhaps meant that the zone should also cover the Kola Peninsula and the Baltic region. If this is the case, Radio Finland's news announcer noted, Mr Nordli's statement will certainly not be the last in this discussion that has continued over the years. Mr Nordli's comments have, of course, a local political background in Norway as well. His statement was apparently aimed at reducing the criticism also from within his own Labor Party resulting from the projected U.S. weapons storage. There is currently a popular movement in Norway for a nuclear weapons-free zone. This movement also includes Labor Party members.

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SUBATOMIC PARTICLE RESEARCH HIT BY BUDGET CUTS

Frankfurt/Main FRANKFURTER RUNDSCHAU in German 1 Dec 80 p 3

[Article by Karsten Plog: "Twilight Descends on 'Desy'"]

[Text] The waves of protest washed right into the Bundestag. In the debate on the government statement by Chancellor Helmut Schmidt, Schleswig-Holstein Minister-President Gerhard Stoltenberg reproached the cabinet leader with the fact that the government was turning off the financial tap for basic research instead of showing "confidence in the future." Stoltenberg was talking about the center for basic research in physics, "Desy," located in Hamburg, which was forced to begin the Christmas break 3 weeks earlier than originally planned because of financial problems. Accelerators and storage rings have been inactive since. The decisive factor was increases in the price of electricity from the Hamburg Electricity Works (HEW), whose major customer is Desy, with DM 22 million spent annually on electricity. In addition to that, the government had slightly reduced the DM 150 million budget for the "German Electron-Synchrotron," which is Desy's full, unromantic name. The chancellor took the opposition attacks so seriously that he spent a considerable time answering them in the debate. Schmidt assured them that there could be no question of endangering the internationally highly acclaimed scientific operation. He pointed out that, after all, Desy was always shut down during the Christmas period so that repairs or new adjustments could be carried out, and during the year partial shutdowns were nothing unusual.

Certainly the pre-Christmas enforced break should not be given too much importance, and work with Desy will continue in the coming year. But it will not run quite as smoothly as the chancellor described. The Ministry for Research is giving assurances that no unacceptable restrictions are being considered. In the case of this operation, however, the question must be asked, "At what pace can we complete the planned expansion?" The fact that Desy had to close down operation prematurely because DM 1.5 million is not available to pay the electric bill should be taken as a warning sign, and the preventive cry for help from the scientists is perfectly understandable. Naturally, at Germany's largest center for basic research in physics, opened in 1964 in the Bahrenfeld section of Hamburg on a former airfield, interest focuses on continuing the previously successful search for what constitutes the very structure of the world, for the smallest building blocks and their energies.

Today, 150 German and about 200 foreign guest scientists work at the center. Almost 40 university institutes from 11 nations, including the USSR, the United



States, China, Japan and several European countries, participated and are still participating in research work. Three physics institutes from the University of Hamburg are located on the grounds.

Even today there are scarcely any comparable plants in the world. The U.S. journal SCIENCE NEWS described Desy last year as "the laboratory with the most advanced equipment in the world for energy-rich collision of electrons with positrons."

In the center of the rooms, laboratories and workshops are "Doris" and "Petra," which are chiefly responsible for establishing the internationally outstanding reputation of the research facility. Both names are acronyms for highly complicated technical plants: "Doris" is a double-ring storage chamber, the 2.3 km-long Petra is a positron-electron storage ring. Using these devices principally, scientists are attempting to penetrate deeper into the structure of matter and to discover the ultimate, indivisible nuclei and the forces that bind them.

Faustian activities of this nature have long since moved out of tiny rooms with steaming and bubbling test tubes. Today the rule is that the more deeply research tries to penetrate matter, and the smaller the traces become, the greater the technological effort and expense for this purpose. In developing this new technology discoveries are made which can be used later in industrial production.

In past years there has been extremely rapid development in attempts to divide matter into smaller and smaller parts. What was taught just a short time ago in physics classes about atoms has to be expanded radically today--and Desy has contributed. By way of atoms, atomic nuclei, protons and neutrons, research has arrived at quarks and leptons, which are presently thought to be the final, indivisible building blocks of matter. The name quark is not an acronym like Petra or Doris, but was taken from a fairytale by James Joyce and means something like "midget" or "shrimp."

In order to discover these final building blocks--five quarks have been proved to exist so far--the scientists in Hamburg make electrons and positrons, which have been accelerated by means of giant magnets, collide at high speed. The result is a kind of "big bang," a miniversion of the event that might have taken place at the beginning of our universe.

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## PROGRESS IN NUCLEAR FUSION REPORTED

Paris ELECTRONIQUE ACTUALITES in French 14 Nov 80 p 2

[Article: "UV Lasers: France Takes a Step Toward Thermonuclear Fusion"]

[Text] The CNRS (National Center for Scientific Research) has announced that French researchers have just taken a major step toward mastering thermonuclear fusion for energy production, by utilizing ultraviolet laser radiation to trigger the fusion of two hydrogen isotopes, deuterium and tritium.

The experiment was conducted at the CNRS and Ecole Polytechnique laboratory in Palaiseau near Paris, by a team under Edouard Fabre, director of GRECO (Coordinated Research Group on Laser-Matter Interaction). The experiment will also be presented at the American Physics Society Congress held this week in San Diego, United States.

The value of the French experiment resides in its theoretical and practical demonstration, that the use of energies 10 to 100 times lower than those previously required with conventional near-infrared lasers, yields comparable results with UV-laser radiation. The point is that one of the basic problems of physics in mastering thermonuclear fusion is to obtain higher energy yields with respect to energy expended.

### 100 Million Degrees

Generally, in order to trigger a thermonuclear fusion event, hydrogen isotopes have to be heated to over 100 million degrees so as to obtain particles which will fuse at a density higher than 100,000 billion per cm<sup>3</sup>, within a confinement time of about one second. Researchers are exploring several paths toward this threefold aim, not including the H-bomb, where energy production is considerable but instantaneous, and therefore not controlled as a function of time. One of these paths is that of magnetic confinement, where the isotope plasma is confined in a magnetic field (Tokamak system, for example.) Another approach is inertia confinement, where fusion is triggered by the compression of matter.

In laser systems, radiation-released energy is used to compress a small ball filled with deuterium and tritium. Their fusion releases energy.

In the Fabre team experiment, the balls or targets of deuterium and tritium were furnished by the Livermore Center of the AEC. Several tens of Gw transmitted through UV radiation to these targets, instead of the several terawatts required in infrared radiation, whose wavelength is longer, were sufficient to trigger fusion.

However, the question remains open among researchers as to whether magnetic or inertia confinement will yield the solution to the problem.

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'THERMOS' REACTOR TO PROVIDE HEAT FOR GRENOBLE

Hamburg DER SPIEGEL in German 15 Dec 80 pp 178, 180

[Article: "Nuclear Technology--Power Plant in the Basement"]

[Text] French and Canadian nuclear engineers plan to heat housing complexes and factories by means of mini-reactors in the future--at the same time undermining resistance by citizens and authorities.

In order to publicize the project already decided on, Grenoble's city fathers had fliers distributed: According to these it was expected that as early as 1985 a major portion of the local offices and apartments would be heated by means of nuclear energy--the erection of a nuclear power plant in the city's immediate proximity was planned.

News of such caliber, presented as nonchalantly as it was, would no doubt have the impact of a bomb in Hamburg or Frankfurt, for instance. But in the French industrial town at the foot of the West Alps with a population of nearly 170,000, the flier action had the impact of a dud: Pierre Corbet, director of the local "Centre d'etudes Nucleaires," registered "very little resistance by the public."

Recently L'EXPRESS, the Paris news magazine, noted that the Grande Nation meanwhile is well on its way to becoming a nuclear state "in the forefront" of all other West Europeans and almost unimpeded by citizens' protests. And now the French want to be in the forefront as far as the implementation of the most recent idea of the nuclear technocrats is concerned--nuclear power plants en miniature, which are to be located in the midst of areas of industrial concentration and no longer as far away from the populated areas as possible.

The power plant planned in Grenoble serves as a demonstration project: Under the brand name of "Thermos" it will have a 100-megawatt (MW) capacity, but provide only about 5 percent of the energy supply produced by a large reactor of the conventional French standard type.

Contrary to the huge energy production plants located far away in the country, however, the future dwarf plant in Grenoble will not generate any electricity. Rather, "Thermos," a type of nuclear immersion heater, is to be connected to the remote heating system which is already in existence in Grenoble, and it is to

supply hot water to heating units, showers, or washing machines as directly as possible. Some 30,000 households, in addition to trade enterprises, will be supplied by "Thermos," according to the planners' estimates.

Employing the minidesign France's nuclear engineers are following a trend which has been discovered elsewhere as well. Canadian as well as Soviet, Finnish and Swedish engineers have started work on minireactors and praise the alleged multiple advantages of the compact energy source.

In the eyes of the designers, "Thermos," for instance, whose reactor container of stainless steel is sunk into the bottom of a water basin, is not only considered to be nonpolluting, but also to be particularly safe: This plant does not require major units, e.g., cooling towers, as it heats up the water to a maximum of 130 degrees Celsius only; thus, the cyclic system is subjected to much less pressure than is the case in a large power plant, in which the temperature of the hot steam transported through the pipes ranges up to 300 degrees Celsius.

Further, the "Thermos" reactor core contains only about 3 tons of slightly enriched uranium--little as compared to approximately 100 tons in a 1,000-MW power plant, for instance. The builders claim that this is why only small amounts of toxic fission products can accumulate in the fuel chamber of the "Thermos" immersion heater.

Similar enthusiasm can be heard when engineers of the "Atomic Energy of Canada Ltd" (AEC) describe their most recent creation: Technically, "Slowpoke," also a minireactor for heating purposes, is a close relative of "Thermos," only smaller--a "Slowpoke" pilot plant operates with a mere 2-MW output.

The "Slowpoke" designers state that it is their primary goal to build the simplest, most robust and foolproof reactor possible. John W. Hilborn, AEC manager, says, "If we want to bring reactors close to people, they have to work reliably without sophisticated safety systems, and they have to be so simple that anyone will understand them."

Mass-produced simple reactors, as plain and robust as the former "Ford Model T" (Hilborn), could be installed in the basements of large hotel or office complexes, for instance, instead of oil-heating systems, according to AEC planning--following a Soviet example: Since early 1980 a 5-MW reactor has been heating apartments and workshops in Dimitrovgrad, a small Russian town.

Unlike most of the Western industrial nations, however, neither protests by citizens nor similarly strict safety provisions exist there. The nuclear engineers, so far fixated on the intimidating large reactor technology, want to eliminate both impediments now by means of their minipower plants in order to accelerate the stagnating business.

It is true that the miniature power plants are still considerably more expensive than comparable conventional plants, but in the opinion of the manufacturers the prices for "Thermos" and "Slowpoke" should be drastically reduced once the uranium heating plants are produced in series.



The French want their "Thermos" to become an export hit. At home, it can only be used under certain conditions: The number of remote heating pipelines is insufficient, and there is also a lack of heating demand in the largely mild French climate. But "Thermos" should be of all the more use for Russia, where it is colder, also in the sun-scorched countries of the Near East where it is to be utilized for purposes of seawater desalination. The French advertise that about 40,000 cubic meters of drinking water per day could be produced by means of the nuclear dwarf.

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# BUILDING PLOGOFF NUCLEAR PLANT APPROVED; RESIDENTS RESIST

Paris LE MONDE in French 3 Dec 80 p 37

[Article by Special Correspondent Marie-Christine Robert: "EDF Has the Government's Green Light to Build the Plogoff Nuclear Plant"]

[Excerpts] Prime Minister Barre and Minister of Industry Andre Giraud have issued a decree dated 1 December, published in the JOURNAL OFFICIEL of 2 December, declaring the Plogoff (Finistere) nuclear power plant construction project to be in the public interest. This green light opens the way for a long procedure which will only be completed toward the middle of 1981 at the earliest. First, a survey has to accurately establish the property boundaries of the land in question, or about 70 hectares. Several hundred landowners, including some joint ones, will have to be identified. Then EDF will strive to buy the lots by mutual consent. Those who are unwilling will have to be served expropriation orders.

The public enterprise will be held to the normal practices of obtaining building permits, authorizations to occupy public maritime areas (over an area of 90 hectares), water usage and discharge permits, and so on. Opponents will probably try to use each of these steps to delay the progress of the project by organizing court appeals.

The work itself will be classified as "major construction" and could begin in the summer of 1981. It will continue until 1990. EDF asserts that it "wants to give an exemplary performance in that traumatized and oversensitive region." An advance team of five engineers is already at the site where they hope to prepare the way. In order to better integrate the plant into the region, for example, EDF is willing to forego construction of employee housing in favor of rehabilitating age-old dwellings in the villages. The first two reactors should be linked to the network in 1990.

"We Will Resist, but What Will our Neighbors Do?"

Plogoff—"Even if they send then thousand CRS (State Mobile Police), we won't stand for it." "We will fight all the way." "Plogoff lives will be sold dearly." Now that the Cap nuclear plant is officially being declared of public interest, the determination of the residents of the Finistere commune seems as unshaken as ever. But the days of general and spontaneous opposition such as took place during the public interest hearings that ended last 14 March, are now long gone. Today, resistance in Plogoff has become organized.

The cohesion demonstrated by the commune has elements of purification: two young municipal councilmen who accepted an EDF invitation to Llanart, where plans for the project were to be presented, found themselves sharply rebuked for their action by the watchdog committee during a municipal council meeting where their resignation was even requested.

### Easygoing Generalities

The determination of the Plogoff population is not enough. Support from the neighboring communes is also needed; an elected official from Cap said that "there is a very strong antinuclear feeling in the region, but the solons sometimes have less radical reactions than the voters who put them in office." Recently, 26 municipal councilmen and mayors of the communes involved, participated in one of the frequent trips organized by EDF. Mrs Kerloc'h states that they came back disappointed. One of them nevertheless observed that "relations with EDF have changed quite a bit." Daniel Bouer (Socialist Party), antinuclear assistant mayor of Douarnenez, asserts that "previously, the policy was one of secrecy. Now we are being offered all-encompassing consultations. We are told to set our own requirements and determine our new directions. We are promised further discussions about the projected bridge for evacuation of nuclear wastes in Douarnenez."

This policy of easygoing generalities allows EDF to conceal its intentions and it limits the opponents' reactions. Especially since political divisions and economic considerations have resurfaced. Henri Cogen (Democratic Center), general councilman of the canton, asserts that "the plant has become inevitable. It is too bad that it is being located here, but since the decision has been made, we must extract the maximum benefits from it for our local activities." As for the mayor of Douarnenez, who until now was able to declare himself communist and antinuclear at the same time, (the municipal council's debate in opposition to the plant bears his signature), will he follow the Plogoff struggle all the way to the end?

Finally, Plogoff is also a quasi-ideological battle; that is, a confrontation between two lifestyles. Over there, in this burg which nobody had heard of, the veterans of Royale, the old soldiers, the sailors' wives have said "No" to Paris. Their refusal also addressed itself to the civilization of comfort, of unlimited energy, of so-called progress which destroys the environment and disturbs the age-old pace of life. During the earliest demonstrations, Plogoff was reminiscent of May 1968: there were assemblies where everyone spoke at once, it was a time of singlemindedness and imagination ruled.

Ultimately, the adventure of the burg is political, and the "Cap people" have discovered their identity as Bretons. The power plant project is a government one, a Parisian one. And this is another reason why it is being rejected.

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## CIPE APPROVES CNEN 5-YEAR NUCLEAR PLAN

Milan ENERGIA NUCLEARE in Italian Apr-May 80 p 187

[Text] CIPE [Interministerial Committee for Economic Planning] has approved the 1980-1984 CNEN [National Nuclear Energy Commission] Five-Year Plan, which calls for a financial commitment of 2.89 trillion lire, of which 2.5 trillion is to be allocated to nuclear activities and the remainder to the development of renewable sources and energy saving. For the current year an expenditure of 390 billion lire out of a total of 415 billion is planned for nuclear activities.

The following is the verbatim text of the deliberations.

### CIPE Deliberates

Approval is given to the proposals contained in the document by CNEN entitled "Guidelines for the Fourth Five-Year Plan (1980-1984)," which reads as follows:

1. Confirmation is given to the course of action outlined in the national energy program with particular emphasis on the program for electronuclear power plants. In this connection, CIPE is being asked to offer its support with regard to research on the safety of thermal reactors and the promotion of our national industry in accordance with the course of action formulated by CIPE itself in its deliberations of 11 January 1980 opting for a series of electronuclear power plants.

2. The termination of the CIRENE installation, already in an advanced stage and whose cost to complete is put in the CNEN document at 250 billion lire, despite certain known delays (the reactor was to have been operational during the period covered by the present plan), is on schedule; and this substantiates the capability of our overall national system to engineer, build, administer and safety-inspect a complete electronuclear power plant.

This accomplishment is also important in qualifying our national industry for participation in foreign markets.

3. Confirmation is also given to the proposal for a national research program in the fast reactor sector. However, subsequent phases of the PEC Project [Fast Reactor Project for Testing Fuel Elements], proposed by the CNEN document, require a further study of certain aspects: the anticipated costs and possible increases in those costs and the time required to complete the reactor in view of the many difficulties still to be overcome both technically and organizationally and clearly spelled out in the CNEN guidelines.

Moreover, further study must be given to the possibility of incorporating the PEC Project in international programs.

4. Confirmation is given to proposals made on the subject of the combustion cycle and, in particular, on collaboration between CNEN and ENI [National Hydrocarbons Agency] with regard to facilities for the retreatment, conditioning and disposal of radioactive waste.

5. Extending CNEN's field of activity to the sector of renewable energy sources and energy saving is one of the more significant points contained in the guidelines: in this sector the CNEN is to collaborate with the other energy organisations and with the CNR [National Research Council].

CNEN will principally have the role of coordinating the activities of research and industrial production, as well as that of technical instrumentation for the evaluation, maintenance and control of demonstrative projects made possible by contributions from ENTE [National Electrical Energy Enterprise].

6. High priority is given to indications contained in the guidelines relative to strengthening the structures and activities to be carried out in support of nuclear plant safety, environmental protection and human welfare.

CNEN is urged to assure maximum participation in possible EEC or international programs which, due to their high cost, cannot be supported by a single country and to assure proper coordination in national activities of that type.

Confirmation is given to the proposal to create an autonomous organization for protective and safety activities. Separation of CNEN's safety control function from that of industrial promotion should be carried out gradually in order to guarantee maximum efficiency on the part of the national safety control system even during the transitory phase.

The government will provide the proper legislation for the above purpose.

7. The new CNEN programs and the nature of the commitments which ENTE is called upon to carry out in support of public and private industry in collaboration with the other national energy agencies (ENI and ENEL [National Electric Power Agency]) reconfirm the need to give those programs institutional status, and this coincides with the proposal contained in point 4 of the deliberations of 23 December 1977. In this case the government will come up with the necessary legislation.

8. In consideration of the financial requirements indicated by CNEN for the 1980-1984 Five-Year Plan, a multiannual finance bill will be presented to parliament based on the investigations and verifications referred to in the preceding paragraphs; funds from the current budget will be used for 1980's requirements (overall fund).

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## SAFETY OF CAORSO POWER PLANT QUESTIONED

From RASSEGNA SINDACALE in Italian 20 Nov 80 pp 13, 47

[Article by Corrado Ferra: "Safety Without Ideologies"]

[Text] A dispute dealing with safety has been taking place for some months at the Caorso electronuclear plant. Leading the initiative are the Piacenza CGIL [Italian General Confederation of Labor], CISL [Italian Confederation of Labor Unions], UIL [Italian Union of Labor] structures, the Regionale Emiliano Unitario, together with the category structures and the Council of Delegates. The magnitude of the problems raised, their complex nature, and the very character of the dispute dealing with nuclear safety, have determined this political choice. This is therefore a novel dispute given its objectives and the forces taking part. The reason behind this effort, the first ever in Italy dealing with a nuclear plant, lies in the awareness that problems of such import directly involve the workers and in many cases the surrounding population. It involves an experiment on how to face not only nuclear problems but also problems dealing with the general issue of high risk plants. Judging by initial results, the road taken was the right one, so much so that one may place the matter in perspective as a national point of reference. The ground chosen for the confrontation and the struggle was decisive. Casting aside all abstract theories or purely ideological debates dealing with the nuclear question, focus has centered on the singling out of all security issues worthy of merit, just as they were brought forth by the employees' studies or the employees' charges. The central issues came to the surface thanks to input from the workers and technicians and to the basic point of agreement reached through the adoption of a political and logical acceptance of ground rules to analyze the problems based on the reality of working conditions and on the actual labor's organizational structure. Brought into question were those reassuring statements on safety, issued at the Venice Conference on Nuclear Safety, which are based on standard theoretical comparisons of Italian plants and those of industrialized nations, in particular those of the United States. Specific mention should be made of the technical archives of the plant's machinery. Though lengthy listings of security standards were bandied about at the Venice conference, no one, with the exception of the labor union, made mention of the fact that at Caorso, the complete plant's technical archives were, and for the most part are still missing. This has been admitted openly by ENEL [National Electric Power Agency]. This matter, which was brought to the fore by the labor unions, has moved the Ministry of Industry to suspend ENEL's license to operate the plant until the archives are complete.

The forceful confrontation with ENEL, and with the builder, Ansaldo Meccanico Nucleare, which is still present at the plant site, also touches on other matters. We make mention here of just a few. The hiring, on a full-time basis, of personnel not employed on a full-time basis. This is a safety matter of significant importance affecting the continuous flow of information between who manages the plant and who works there. The Harrisburg incident highlights the very training received by the plant's employees as a primary guarantee for the plant's safe operation. Some results originating from these issues have already been noted, but organizational slippage, as well as ENEL's cultural and philosophical management percepts, are grave and worrisome. ENEL, in fact, is preparing to manage the plant in a traditional manner. In other words, managing it the way it would manage a hydroelectric plant. ENEL itself has admitted that a minimum of 2 years will be needed to achieve an adequate training standard needed for maximum safety.

The labor union's action did not stop here. It dealt with the matter involving information directed to the population regarding the plant's characteristics. This led to positive thought partial results. Also, it touched on the matter of emergency planning in case of accidents. On this last point, it should be said that the observations, which were general in nature and prepared by local organizations and by labor unions, not only were not studied by the Piacenza prefecture, but their details only came to light a few weeks ago, and furthermore, no mention at all is made of aid stations. And here we face another problem, namely the necessity to modify DPR No 185 and 1964 on nuclear safety, which excludes any action taken on part of local organizations and social groups while entrusting problems dealing with safety control to CNEN (National Nuclear Energy Commission) and the management of operational procedures in case of accidents to the Ministry of the Interior. This is an absurd way of doing things, not only in view of the role assumed nowadays by local groups regarding their legal responsibilities, but also because of the tasking of safety control directives to CNEN, the group responsible for promoting nuclear energy. Here one is faced with the need, by now acknowledged by all, of separating the section whose function is to control safety from that whose function is to promote. This also has yielded results, namely the setting up of a commission with the Ministry of Industry tasked to modify present laws dealing with nuclear safety, especially with DPR No 185 of 1964. Finally one must also consider those problems relating to the instrumentation and the management of preventive medicine at the plant. This item is to be cancelled from the national health system and introduced into local health organization as called for by the recent reform.

Without attempting to exclude projects proposed by the state from the possibility of being included in a centralized framework regarding the safety of workers and citizens, a project of this magnitude has evidenced grave superficialities and in some cases, irresponsibility. We make particular reference to ENEL, which, involved in a project of such high stakes, not only appears ill-equipped when called upon to constructively face the labor union's challenge, but is actually hindering the process by bringing into play wretched, pretentious obstructions. According to ENEL, the Caorso matter should be limited to the competence of the electrical labor unions and the Council of Delegates while excluding the regional CGIL, CISL and UIL labor unions. This is that symptom of cultural and well as political deficiency that characterizes the public electricity organization, of which we spoke before. These are absurd, prejudicial questions, almost of a corporative nature, if not worse, that must be beaten back. An organization that still operates in this manner gives doubt of not being at the height of the tasks entrusted to it by the community as a whole.

# POPULATION OPPOSES NUCLEAR WEAPONS, PEACEFUL USE OF ATOM

Zurich NEUE ZUERCHER ZEITUNG in German 9 Dec 80 p 4

[Article by pmr: "The Nuclear Qualms of the Dutch--Against Nuclear Weapons and Peaceful Use"]

[Text] Brussels, 6 Dec--One year ago the Dutch attracted global attention to their nuclear qualms regarding the deployment of 572 nuclear medium-range missiles (Persh-2 and Cruise Missiles) in Europe. Since then they have not stopped discussing any form of utilization of nuclear power in depth, with the loyalty to principles inherent to them. Action groups and citizens' committees have mushroomed. Unconditional rejection of nuclear weapons and unconditional rejection of nuclear energy are very closely related issues which sometimes even merge.

## Campaigns of Rejection

Hardly a week goes by without the newspapers reporting on new antinuclear protests. With the help of their chaplains, 30 officers founded a "Peace and Security Council" to emphasize their refusal to use nuclear weapons in case of emergency. Many citizens do not remit part of their income taxes to the tax authorities, but to a peace movement instead, because they do not wish their money to spent for defense purposes. Housewives pay their utility bills in small installments to confuse the administration of the two Dutch nuclear power plants. The synod of the Reformed Church professed to unilateral nuclear disarmament and publicized this recommendation in a pastoral letter to all parishes. The church fathers wrote that the multilateral disarmament negotiations so far had not prevented more and more new and abhorrent arms from being installed. The Dutch should now therefore set an example without bargaining for a return.

The nuclear issue is also a crucial one on the highest political level. The largest party of the country, the opposition Workers' Party (PVDA) is facing the alternative of either losing its former prime minister and top candidate for the May elections, Joop den Uyl, or shifting to a less radical position in the nuclear weapons issue. Den Uyl declared unequivocally that he will not run as a candidate for the next election if his party continues to insist on abandoning all of the Netherlands' obligations regarding nuclear weapons within NATO. Although the 61-year old former prime minister advocates a reduction of Dutch units ready to be equipped with nuclear warheads, he considers it impossible to do away with them completely within the upcoming cabinet session. Therefore he does not want a demand for to be included in the party platform. The numerous hotheads within PVDA, however, sweep these arguments off the table and accuse the "grand old man" of their party of "blackmail."



## Contested Agreements

There have been heated discussions in the Dutch Parliament for weeks on two agreements concluded with France and Great Britain regarding reprocessing of spent fuel rods of the two Dutch nuclear power plants. In addition, the start of "society's great discussion," which is to bring a final word on whether nuclear energy should be utilized in the Netherlands in the future, is being delayed. There has been a time-consuming, futile tug-of-war regarding the processing agreements which provide that radioactive waste be returned to the Netherlands after 1995. The two partner companies under private law, Cogema of France and British Nuclear Fuels, resist publicizing the agreements because they do not wish to release certain commercial and technical conditions. The members of Parliament, however, feel that they cannot support agreements the exact contents of which are not disclosed to them. Up to the beginning of this week, it looked as if Parliament would finally give in. But then the Christian Democratic party faction of the government (CDA), supported by the opposition, demanded after all that the agreements be disclosed to all of the 150 deputies of the Second Chamber. It is not expected in The Hague, however, that the Christian Democrats will risk a government crisis if the cabinet is not able to comply.

## Reluctance To Decide

"Society's great discussion" has been a slowly burning issue of Dutch internal politics for over 2 years. Although de facto the nuclear energy debate gained full speed a long time ago--with the result even being anticipated more or less: of the country's major parties, only the liberal VVD advocates nuclear energy--the formal discussion for which the National Energy Council has stipulated a three-phase schedule has not even begun, because Minister of Economics van Aardenne has been looking in vain for a "discussion leader" for a year. Several prominent figures who do not wish to get burned by this hot issue have already declined the minister's offer. Initially, the "national discussion leader" is to have data collected, as complete as possible, and then present it to the 14 million Dutch for discussion at various events. It is hoped that this will be in early 1983 at the latest. Last week when the minister of economics suggested beginning without a discussion leader for the time being, he created a storm of indignation. There are more and more voices, though, who feel that the entire discussion scenario is superfluous because it serves as a cloak for hesitating politicians only, as most of the parties have already made up their minds. As the Dutch sit on a large natural gas pocket, however, which will last for at least another 20 years, they can still afford these vacillations.

## Results of Surveys

According to a survey which was published on Friday in ELSEVIER'S a weekend magazine, 53 percent of the population are against deployment of nuclear weapons in the Netherlands. Only 39 percent advocated it in order to offset Soviet military power. Eight percent did not voice an opinion on this issue. Forty-eight percent of the Dutch, however, were of the opinion that the West should have nuclear equipment in principle; forty-six percent rejected even this.

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# INSTITUTE CHIEF SEEKS ATTEMPTS TO CIRCUMVENT NUCLEAR PLANT LIMIT

Stockholm DAGENS NYHETER in Swedish 25 Nov 80 pp 1, 17

[Text] The nuclear power industry may circumvent the result of the popular vote by increasing the capacity of the reactors. In that way, an electricity production corresponding to a thirteenth reactor will be achieved. The Oskarshamn power group has already requested that the capacity of Oskarshamn 2 be increased.

Bo Lindell, chief of the National Swedish Institute of Radiation Protection, now states that the increase in the capacity of Oskarshamn 2 may be followed by similar requests for other reactors.

"However, this is a question that will have to be decided by the politicians," Bo Lindell writes in a letter to the National Swedish Nuclear Power Inspection Board.

The National Swedish Nuclear Power Inspection Board has recently recommended that the government agree to the increase in the capacity of Oskarshamn 2, seeing that 'the safety is not being jeopardized.' Bo Lindell is a member of the National Swedish Nuclear Power Inspection Board but was unable to attend the meeting in which the Oskarshamn question was discussed. He has instead written a letter to the National Swedish Nuclear Power Inspection Board.

"As far as radiation protection is concerned, the increase in capacity is of little consequence," Bo Lindell writes. "This despite the fact that the amount of waste from Oskarshamn 2 will increase by 6 percent. But I still have got a somewhat uneasy feeling seeing that the increase in capacity of Oskarshamn 2 may come to form a precedent. It would be inopportune if the capacity of Barseback were to be increased correspondingly."

Bo Lindell mentions that the U.S. Nuclear Power Inspection Board (the NRC) has decided to freeze the capacity of nuclear reactors located in the vicinity of big population centers.

"I see no reason why we should be less cautious than the NRC, especially since we are talking about a surplus power capacity in Sweden in the eighties," Bo Lindell says. "That is why I hesitate to agree to an increase in the capacity of Oskarshamn 2, although it is located in a thinly populated area."



Bo Lindell disapproves of the fact that the recommendation from the National Swedish Nuclear Power Inspection Board to the government does not contain the least amount of hesitation.

"The limit at 12 reactors set by the popular vote was not set for purely technical reasons," Bo Lindell writes. "The National Swedish Nuclear Power Inspection Board should, therefore, have drawn attention to all of the conditions in connection with its recommendation. The issue now appears to have become completely belittled and uncontroversial, which, of course, it actually is not."

Bo Lindell's letter has now been sent to the government as well, which will be making the final decision on the request from Oskarshamn.

According to the request, Oskarshamn intends to increase the capacity from 580 to 615 megawatts. That means that the power production will increase by 6 percent but also that the amount of radioactive waste formed will increase by 6 percent.

"In addition to more waste, the temperature in the reactor will increase. If an accident should occur, everything will happen more rapidly when the capacity is higher," Bo Lindell tells DAGENS NYHETER.

The reason why Oskarshamn has applied for permission to increase the capacity of Oskarshamn 2 is quite simply that the reactor is functioning better than expected.

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## BRIEFS

**URANIUM PROJECT AHEAD--**The LKAB Mining Company (Luossavaara-Kiirunavaara AB) will be mining 300-400 tons of uranium annually at Pleutajokk in the Arjeplogs municipality. An application for permission to do so will be submitted to the government at the turn of the year. If the government, the Riksdag, and the Arjeplogs municipality agree to it, the mining will be started in 1984. Nuclear power companies are interested, as it is nice to be somewhat self-sufficient, as far as uranium is concerned. Moreover, approximately 200 new jobs will be created. The deposits at Pleutajokk contain approximately 6,000 tons of workable uranium. This will be sufficient for the operation of twelve reactors for 4-5 years. The ore at Pleutajokk has a higher uranium content than the shale at Ranstad. As is well-known, the Ranstad project is about to be closed down, partly because the uranium price has dropped in the world market and partly because of the big environmental problems. The LKAB Mining Company participates in the Ranstad project. The attention will now be focusing on the Pleutajokk project instead. Erik Svenke, chief of the Swedish Nuclear Fuel Supply Company, says that the Pleutajokk uranium is interesting. The Swedish Nuclear Fuel Supply Company, therefore, has participated in and paid for the investigations concerning the deposits. Erik Svenke stresses, however, that the investigations into the economic and technical aspects of the project have not yet been completed. The work environment, for example, will have to be acceptable. For quite large amounts of radon are formed when uranium is mined, and radon can cause cancer. In the eighties, Sweden will need approximately 12,000 tons of uranium for the operation of the reactors that have been decided upon. Contracts of purchase for 4,300 tons of that quantity have been signed. The suppliers are France, Canada, and the United States. [Text] [Stockholm DAGENS NYHETER in Swedish 27 Nov 80 p 39] 7262

**BARSEBACK-2 LONGER LIFE--**Sydskraft will prolong the operating time for the nuclear reactor Barseback-2 from 12 to 18 months. In that way, the maintenance costs will be reduced, at the same time as a somewhat larger amount of power can be produced at Barseback-12. However, Sydkraft has no plans to increase the capacity of its reactors, contrary to what the Oskarshamn power group is known to have requested for Oskarshamn. Sydkraft will shortly ask the National Swedish Nuclear Power Inspection Board for permission to operate Barseback-2 for 18 months without a shutdown. If that request is granted, the extension will be carried through after the fuel exchange in the summer of 1981. A nuclear reactor is normally operated for 12 months, when it will be stopped for fuel exchange and maintenance. The shutdown will last for 1 month but may be longer if major maintenance work will have to be undertaken. [Text] [Stockholm DAGENS NYHETER in Swedish 28 Nov 80 p 9] 7262

LOAN FOR FORSMARK-3--The Forsmark power group will take a bond loan of 200 million kronor to build Forsmark-3, the eleventh nuclear reactor of Sweden. Vattenfall has asked the government's permission to provide guarantee for the loan, which will run for 10 years with an interest of 13-13.5 percent. The Riksdag has agreed to Vattenfall providing guarantee for a total loan of 6,530 million kronor, which the subsidiary company, the Forsmark power group, will take in Sweden and abroad. So far, the company has borrowed 5,360 million kronor for construction at Forsmark. The three reactors at Forsmark will be producing approximately 18 tWh (billion kilowatthours) annually. Forsmark-1 will start commercial operation in a few weeks. The test operation of Forsmark-2 will be started in the days following a 3 weeks' charging with nuclear fuel. Forsmark-3 will be started in 1985 and can then be ready for heat deliveries to Uppsala and Greater Stockholm by early 1989. [Text] [Stockholm DAGENS NYHETER in Swedish 28 Nov 80 p 9]

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